DOCUMENT RESUME

ED 436 965 FL 026 088

AUTHOR Meskill, Carla; Mossop, Jonathan; Bates, Richard
TITLE Electronic Texts and Learners of English as a Second Language
INSTITUTION National Research Center on English Learning and Achievement, Albany, NY.
PUB DATE 1998-04-00
NOTE 17p.; Paper presented at the annual meeting of the American Educational Research Association (San Diego, CA, April 13-17, 1998).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Computer Assisted Instruction; *Computer Uses in Education; Elementary Secondary Education; *English (Second Language); *Instructional Materials; *Literacy Education; Second Language Instruction; Second Language Learning; Teaching Methods

ABSTRACT

This paper details a 2-year study of exemplary uses of electronic texts (information displayed electronically on a computer screen) in two English-as-a-Second-Language (ESL) learning contexts. Topics include the following: the need and desire to communicate; opportunities for topic control; and opportunities for planned and unplanned discourses. Language and literacy are socially mediated and socially constructed phenomena. Where technology is commonly viewed as a venue for independent, non-social activity, quite the opposite has been observed by researchers. Indeed, the presence of technology in conjunction with the goals, purposes, and epistemologies of these teachers is resulting in a unique and powerful classroom dynamic where children are taking control of their own meaning-making with teachers scaffolding and guiding the process. The manner in which these activities can be orchestrated and supported by technology is instructive for teachers, teacher educators, administrators, and curriculum developers as they consider roles for the technology in various language and literacy-oriented school contexts. Electronic texts and the machines that carry them can be springboards and supports for reading, writing, listening, speaking, and thinking. Such uses demonstrate the real and potential language and literacy implications of computers and electronic texts when these tools are thoughtfully integrated into instructional contexts. When properly used, electronic texts can offer novel and empowering roles for learners and their teachers. (Contains 18 references.) (KFT)

Reproductions supplied by EDRS are the best that can be made
from the original document.

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☒ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.
PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY
Carla Meskill
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

ED 436 965

(Draft Paper)

Electronic Texts and Learners of English as a Second Language

Carla Meskill, Jonathan Mossop, and Richard Bates
University at Albany, State University of New York

ABSTRACT

Dramatically growing numbers of school-age children for whom English is not the native language have very immediate, critical needs regarding language and literacy. Recent interest in electronic texts (information displayed electronically on a computer screen) as a means of supporting language development has brought English as a second language (ESL) teaching professionals around the country to include computers, multimedia, and telecommunications as tools for second language and literacy instruction. This project of the National Research Center on English Learning and Achievement, a center dedicated to the study of best practices for language and literacy development, is critically analyzing current, intact uses of electronic texts with ESL learners with the aim of better understanding optimal instructional contexts, processes of technologies use, and their implications for language and literacy development. This paper details a two year-long study of exemplary uses of electronic texts in two ESL learning contexts.

INTRODUCTION

School-age children for whom English is not the native language have very immediate, critical needs regarding English language and literacy. For the majority of these children — those who are not students in any of the nation's bilingual programs — during the period needed for their second language and literacy development their participation in academic activity is limited. This period is typically from five to seven years. During this time, ESL learners receive instruction in second language and literacy through specialized English as a second language instruction as well as "incidentally" in regular mainstream classroom academics.

Providing opportunities for ESL learners to develop English language and literacy skills is a continual challenge and concern for schools. Recent interest in technologies as a means of supporting language development has brought ESL teaching professionals around the country to include computers, multimedia, and telecommunications as tools for instruction. In addition to ESL-specific instruction, mainstream teachers are coming to view these technologies as a means by which ESL learners who can not otherwise participate in class activities can be actively involved in language and literacy practice.

A recent survey of school use of technologies with ESL children (Meskill & Mossop 1997) indicates that not only are teachers utilizing technologies with their ESL students in a number of ways to support their language and literacy development, but that the vast majority of software packages they use are designed for native speakers of

BEST COPY AVAILABLE

FL 026 088

English; that is, they are content-rich and, when their use is coordinated with mainstream academic content, this use helps to simultaneously support linguistic and conceptual development. Teachers also see use of content-area software as promoting student involvement, and consequent skills development in content-based language and literacy. In short, electronic texts are apparently being used, and used well and thoughtfully, by many ESL professionals.

This paper examines the unique forms of electronic texts, provides analysis of learner interaction with such forms, and discusses the implications of these unique forms for second language and literacy development. Examples drawn from extended observations in ESL and mainstream classrooms where computers are made use of as tools to support ESL instructional activities are provided to illustrate the nature and dynamic of second language learner literacy skills development as they occur in interaction with electronic texts.

Electronic texts

The electronic text represents one of many resources that can be integrated into second language instructional activities. Many special characteristics of the medium have historically been claimed to be pedagogically advantageous. These include autonomous learning, self-pacing, increased motivation, efficiency in productivity and individual record-keeping. Indeed, the environments we observed where electronic texts were being used with ESL children, along with testimonials on the part of the teachers, indicates the extent to which this medium plays a significant role in shaping the instructional discourse and dynamics within carefully orchestrated learning environments. In addition the medium specific qualities of anarchy, publicness, instability, malleability, democratization and anchored referents (what we will hereafter refer to as "the unique features of electronic texts") are the primary focus of our analysis of electronic-text-using ESL classrooms. We are studying how these unique features interact with good teaching to shape the learning of language and literacy of these students.

Optimal Conditions for Classroom Second Language Learning

Optimal instructional conditions for the acquisition of second language and literacy skills have been proposed within the field of second language pedagogy (e.g., Ellis 1986, Johnson 1995, Savignon 1991). In brief, these conditions reflect current understandings of the second language acquisition process and what best supports that process. These proposed conditions provide a framework for the design of instructional activities that simultaneously practice and develop skills in reading, writing, listening, and speaking. The instructional conditions considered optimal for second language and literacy development selected for use in this project are:

1. A need and desire to communicate — involvement and interest in what is being talked about.
2. Opportunities for learners to control the topic of conversation and self-initiate in class.
3. Opportunities for learners to negotiate meaning using language patterns, routines and strategies.
4. A challenge slightly beyond the current level of proficiency.

5. Opportunities for learners to perform a wide range of language functions.
6. Opportunities for learners to engage in planned and unplanned discourse — a balance of form-focused language and less structured communicative practice. This should be aided by scaffolds for students to try out new linguistic structures and functions.

While the above conditions may comprise a list of the optimal conditions for classroom second language learning, one would not expect to find all of them in every teaching situation. Factors such as age, language proficiency, instructional goals and teaching conditions all affect the likelihood of any particular condition being present in any given situation. In this study we draw our data from a limited number of observations in elementary and middle school classrooms where computers are being used. We find evidence in our data of conditions one, two and six but we hypothesize that more extensive data will reveal evidence of the other conditions — specifically more observations in middle and high school contexts. The following sections explain the three conditions of which we found evidence in our data.

A Need and Desire to Communicate

A tenet central to current theory and practice in second language acquisition is that learning another language is optimalized through active *use* of the language. It is widely accepted that this active use is what ultimately triggers and allows cognitive integration of the complex of linguistic form and its relation to meaning (Krashen 1982, Savignon 1991, Vygotsky 1978). Active use implies that there is an inherent need to understand and convey meaning with another language user. It also implies that participants in such a communication are sufficiently motivated and desirous of success to apply a great deal of effort to the process. Language professionals consequently design, implement, facilitate, and use as a source of assessment information, instructional tasks that not only require active interaction in the target language, but that instill and sustain a need and desire to communicate with others. This type of effortful, meaning-centered activity has for quite some time been a key element in instructional materials design, classroom practice, and even some language achievement assessment tools. In the ESL contexts we have observed, teachers clearly design and orchestrate their classrooms with active language use as a primary goal.

Opportunities for Topic Control

According to Ellis (1990), ESL learners need abundant opportunities to control the topic of conversation, and self-initiate in class, in order to develop communicative language proficiency. The typical classroom situation, however, is one in which teachers and students act out what Kramsch (1985) calls institutional roles as they engage in activities concerning the transmission and reception of knowledge. Sinclair and Coulthard (1975) describe the typical teaching exchange as consisting of an IRF structure, in which a teacher initiates an exchange by asking a question, a student replies, and the teacher follows up with an evaluative comment. This structure, as Van Lier (1988) notes, constrains the opportunities learners have to make use of transition points for taking control. As Corder (1977) points out, teachers as knowers have complete control over

classroom discourse and in normal teaching situations they make full use of their rights. They control who participates, who initiates, who closes, and how long exchanges may last. In contrast, when students do have control over their interactions they utilize a wide range of communicative acts and syntactic structures (Cathcart, 1986). They also use discourse lubricants, such as topic introducers and amplifying moves, that are absent in teacher-led discussions (House, 1986). In general, the research suggests that when learners have control over the topics of conversation, they can practice the communication strategies that are a necessary part of naturalistic discourse and affect language learning.

Opportunities to Engage in Planned and Unplanned Discourse

According to Johnson (1995), this condition requires students to engage in two different types of language experience. The first (planned) is discourse in which the teacher follows a predetermined linguistic agenda, while the second (unplanned) is discourse similar to what the students will encounter outside the classroom. While the relative balance of these two language types has been the focus of much second language research, the current view is that any attention to linguistic form should take place only within an overall communicative framework. For example, Long (1991) calls for a "focus on form" in which attention is paid to language only within the context of communicative interaction, rather than a "focus on forms" in which isolated linguistic items are taught and tested according to the tenets of behaviorist psychology. Similarly, Ellis (1995) advocates an approach in which students are encouraged to "notice the gap" between their actual and intended output. However with this processing approach, Van Patten (1990) points out that care must be taken that the cognitive demands of the task do not clash with the attention required for intake of meaning.

Our approach in this study has been to focus on the ways that electronic texts support and complement second language instructional practices and processes under such optimal conditions and, in particular, how unique features of electronic texts as described by Ulmer (1989) and Winkelmann (1995) interact with solid language and literacy instructional practices. From the work of Ulmer and Winkelmann at least three unique features of electronic texts can be identified: anarchy, malleability and democratization. Additional features, that of publicness, instability, and anchored referents evolved from observations and through discussion among the researchers. The merger of these dual perspectives — optimal conditions for second language and literacy development with the unique features of electronic texts — yields an instructive paradigm for understanding the potential of electronic texts as tools to support and affect second language and literacy development in particular, and language and literacy in the broader sense.

THE STUDY

Purpose

An earlier study of learners of English as a second language and electronic texts revealed that a number of instructional contexts were making use of technologies to support the language and literacy development of non-native speakers of English (Meskill & Mossop, 1997). The current study set out to detail practices, forms of interaction of

non-native English speaking children with the electronic texts, and the role the technology is playing in shaping optimal contexts and instructional processes.

ESL and the electronic text environment

Two ESL contexts were selected for intensive study. These were chosen from a pool of over one hundred ESL teachers who self identified as having model applications of technologies with ESL children (Meskill and Mossop, 1997). Criteria for selection included exit rates of ESL children in the district, length of time a technologies component had been in place, teachers' training and expertise in both instructional technology and as an ESL professional, and willingness to share and reflect on instructional processes.

Observations, teacher interviews, and student interviews were conducted in these contexts over the course of two years. The elementary context involves an ESL pull-out and push-in approach that utilizes technologies. The second context, a middle school ESL classroom, has children scheduled for daily ESL classes. This technology-rich classroom is also a popular drop-in site for children seeking additional help with their coursework during their free periods and after school. Sessions were videotaped at both sites. These were then transcribed, coded, and analyzed with the goal of detailing the complex interaction of electronic texts' unique features and the language and literacy activity that occurred in concert with these.

The data were coded first for the optimal conditions for second language learning adapted from K. Johnson, 1995 (see above) and then for the set of six specific features of electronic texts that distinguish these from the print medium. Comparative coding sessions checked and refined initial independent coding and intersections between optimal conditions and unique features of electronic texts were examined and they serve as the basis for our descriptive analyses. From this we identified a number of instances in our data where particular electronic text features appeared to coincide with some of the conditions considered optimal for learning. Some examples of these are outlined below.

1. Anarchy

This feature directly contrasts with traditional linear/hierarchical forms of representation characteristic of the print medium, especially school-based print. Here, learners exercise volition and control over the order and direction of their interaction with electronic texts and the resulting discourse can be anarchic.

When learners are allowed to exercise control, the inherent instability of the medium, as well as a lack of knowledge about the program, can lead to a state of discourse anarchy in which traditional classroom talk around a predetermined topic is replaced by conversational chaos.

In this excerpt, a 4th grade non-native speaker student (NNS1) is paired with a native speaker student (NS) in the mainstream classroom where they are working together to jointly create banners. Another non-native speaker student (NNS2) looks on.

NS:	Ms. F-----, what happened to the computer here?
T:	I don't know. What did you do?
NS:	We were playing with that banner thingy.
NNS1:	We were doing one. We didn't print it though.

NNS2:	They went over there.
T:	You went over there?
NS:	(moves mouse and opens options box and reads) Hide place marker. That has been highlighted.
NNS1:	No. It's been like that.
NS:	Shadows.
T:	I don't know what you did.
NNS1:	I don't either.

Here the students have assumed control of the topic but have encountered problems with the program they are using. The teacher's role is reduced to that of a relatively helpless on-looker who can do no more than witness the conversational anarchy.

However, when learners *can* use the software successfully and if they are left to their own devices, they can approach and use electronic texts in ways that they deem useful. In this situation a need and desire to communicate emerges which leads to anarchic patterns of interaction with the teacher.

The following excerpt also shows a 4th grade NS student paired with a NNS student selecting their favorite wordplay jokes. Up to this point, the two children have been finding and sharing with one another several of these jokes; they have recently turned to their teacher to share with her one of their favorites. She approaches, appropriates the mouse, and scrolls through to see what jokes they have read and shared thus far.

NS:	(watching the screen as the teacher randomly scrolls and clicks) A star! What does the star mean?
T:	I don't know.
NNS:	(looks at screen) I don't like that one.
T:	(reads form screen) Choose a stamp. Oh, I bet you go to...
NS:	Oh, yeah. Remember when you stamp your favorite?
NNS:	Yeah.
T:	(clicks on an item) Okay. (Takes hand off mouse. NNS1 takes over as T walks away).
NNS:	Aw, we don't want this one.
NS:	She went to ...(points to screen) go to the next one. Yeah, right there.

There is a special, anarchic quality to the manner in which these two fourth graders negotiate and make their selections that is independent of both teacher-imposed or software-imposed structure. The learners exercise volition, and in doing so, actively make judgments and negotiate selections through peer discourse.

The anarchic feature also coincides with unplanned discourse as, in the electronic text environment, interactions with nonlinear structures require students to make decisions about how best to proceed with a computer activity. Talk between students in these situations is completely unplanned. When students are paired at the same computer, negotiation about order and direction is often characteristic of the discourse.

A NNS student and a NS student, also form the 4th grade, are reading information from a software program on the topic of "humor."

NS: (Reading alone): Read the screen to highlight one piece of information that explains how laughing is good for you body. (NNS clicks to a new page and NS continues to read): When I read this screen I noticed that sometimes I had to highlight two or three sentences to get one piece of information.

NNS: (Clicking from page to page): I don't know what to do. Okay. Right there (stops mouse tracker on an icon).

NS: (Points to a different icon): Nope. You don't have to do that one (NS clicks on the new location and different screen appears).

When teachers interact with students in response to the anarchic feature of electronic text, they often attempt to scaffold the decision making process by suggesting helpful strategies for students to consider. We observed instances where the teacher's bid to focus the students' attention on a particular strategy was ignored when students' interest was centered elsewhere in the computer activity. In the ensuing discourse it was clear that the final decision about where to center attention rested with the students. Two 2nd grade NNS students in the ESL classroom are paired at a computer selecting graphics for a background picture for a story. Their teacher tries to show them a strategy for accompanying alphabetically ordered word list of graphics.

T: You can click on lots of different ones. You hear the words and you can decide what you'd like to put in. Give it a try. (NNS1 clicks. Computer says "grass".) Do you think you'll need any more grass?

NNS1: Nope. (clicks mouse. Computer says "flowers") Which flowers?

T: These words are in alphabetical order. (Points to word list on screen)

NNS2: There is a cat! (Teacher walks away)

NNS1: Flower. I put O. (NNS2 types on keyboard O-W-E-R-S) S, S oh.

Anarchy as an electronic text feature facilitates learners' need and desire to communicate by virtue of giving learners autonomy for approaching and using electronic texts in ways that they decide that befit their purpose. In the ensuing unplanned discourse, control of the topic clearly is in the hands of the learners who are themselves responsible for making decisions about order and direction of their interactions with electronic texts.

2. Publicness

The feature of publicness can be defined as the public nature of electronic texts that prompts, supports, and facilitates rich discourse on the part of learners and their teachers.

When students work on computers, their on-screen products are usually highly visible and as a result can be easily critiqued. When a teacher is critiquing she naturally takes control of the topic and can engage in traditional error correction. In this excerpt, the teacher comes over to check the work of a 4th grade NNS in the mainstream classroom.

T: What's the matter? Are you stuck? (looking at computer screen, notices a grammatical error in a sentence — a singular verb is used where a plural is correct) Let me read that to you. "There is over 25,000 different fish. There is over 25,000 different fish". Do you hear what's wrong with that?

NNS: Uh-uh.

T: There is over 25,000 . . .

NNS: Oh! (long pause) No.

T: So you want . . . what word? There can be a singular word. There is. There is one. There is two?

NNS: Is.

T: Is, is singular, right? What word makes more sense there? We use 'is' when we use singular words. What do we use when we use plural words?

Thus when the teacher chooses to focus on linguistic form, she is supported by the publicness of screen visibility. This allows her to engage the students easily in a dialogue about form.

Publicness also enables teachers to initiate scaffolding as well as engaging in direct instruction. In the following example, two 2nd grade NNS students in the ESL classroom are paired at a computer. One is helping the other to get started with a new software program and the teacher enters the interaction.

T: (Returns to where NNS1 and NNS2 are working), S---s never used this before. What if she can't read all of these words? Will the computer help her K---?

NNS1: Yeah.

T: How?

NNS1: If she just clicks on it, it says the word (points to screen).

T: Give it a try S----. Click on one of those words up there.

NNS2: Hey. (She points and clicks the mouse highlighting the word – bull).

T: Cool. Do you know what a bull is?

NNS2: umm?

T: Would you like to see what a bull looks like?

NNS2: Yeah.

T: All right. Then you type the letters in. Can you tell me what the letters are in bull? (points to the word on screen).

NNS2: B.

Here the teacher initiates a scaffold to build conceptual understanding of a word that her students have encountered in the software program. She also provides some direct instruction (operating the software program and spelling a word). During the direct instruction the language interaction is characteristic of traditional teacher discourse with the students participating in a planned sequence of talk that follows a question-response pattern.

The feature of publicness also supports unplanned discourse. Those near the screen have ready access to the mouse when a point needs to be made or a maneuver

demonstrated. In the accompanying language interactions, students have many opportunities to engage in unplanned discourse. In our observations, unplanned discourse occurred in talk that was prompted by something unusual or exciting about a student's work being noticed. Talk between students was often focused on the software and was characterized by the students pointing at the screen or using the mouse tracking arrow to point to an on-screen item. Here the same two students are working on the same activity.

NNS1: Right there (points to screen). Background.
NNS2: Okay (moves the mouse).
NNS1: Click on it (pointing at screen).
NNS2: What?
NNS1: Background. Right there. Yeah, click it. Hold it. (Points to picture on screen), See, it goes to farm. Back up to there. If you want pictures just push this (points to screen).
NNS2: Okay (controlling mouse and moving it).
NNS1: And push it. Push it. Then it says show list. (Watching as NNS2 moves tracking arrow), Right there. Then you got to type it. That you want. . . like type, just type the word.

The feature of publicness interacts with the conditions of topic control and opportunity to engage in planned and unplanned discourse. Learners' on-screen activity is both visible and audible to peer learner partners and nearby teachers. Publicness is utilized by learner pairs to aid the unplanned talk that goes on between them during the computer activity and the feature helps them to communicate about their on-screen work. When teachers initiate instructional scaffolds, provide direct instruction, or engage in traditional error correction in response to learners' on-screen work, publicness plays a significant role. In language interactions around such instruction, learners are engaging in both planned and unplanned discourse.

3. Instability

Electronic texts are inherently unstable. Information appears, disappears, and changes, and the relational structures of information are often invisible. This lack of predictability provokes the kind of thinking and conjecture reflected in critical thinking and the literacy/acquisition oriented discourse that accompanies it.

Dealing with the unseen and unpredictable side of electronic texts — the virtual, tenuous aspect of representation — pushes children to solve abstract problems of the unseen. In the following instance, two children are working to navigate tools and functionality that are not immediately perceivable. The children's negotiations are thoughtful efforts at mastering the unseen, relational side of the texts they are working with. The instability of the medium provides a clear, directed need for the students to communicate. In this excerpt, two 2nd grade NNS students are at work in the ESL classroom.

NNS1: Right there. (points to screen) Background.
NNS2: Okay. (moves the mouse)

NNS1: Click on it. (points to screen)
NNS2: What?
NNS1: Background. Right there. Yeah, click on it. Hold it. (points to screen) See it goes on the farm. Back up to there. If you want pictures, just push this (points to screen)
NNS2: Okay (controlling the mouse)
NNS1: And push it. Push it. Then it says show list. (watching as other student moves cursor) Right there. Then you got to type it. That you want. Like, type, just type the word.

The instability of the computer medium also affects topic control. When neither of the interlocutors is sure of what is happening, collaborative discourse emerges in which no one party is in total control. In this excerpt, two 8th grade NNS students are working in the ESL classroom searching a data base of audio sound effects for an up-coming presentation.

T: Go up there in the file and see.
NNS1: So we're going to get it all right cause it's all right here.
T: Could you save it all at once? Maybe that . . .
NNS2: (clicks on File on the menu bar) Oh here we go. (clicks on items and highlights them and reads) Back - Home - Help.

Students on computers are required to respond to an array of unpredictable and unanticipated demands. They find that they are forced to negotiate pop-up dialog boxes, toolbar options, and new screens. The resulting discourse between students, and between students and teachers, gives rise to much unplanned talk as they encounter unanticipated machine demands. In the following excerpt a 4th grade NNS student is paired with a NS student in the mainstream classroom. They are using a software program to make a banner.

NNS: Okay. (Clicks mouse and screen goes black. A menu bar appears at the top of the screen. NNS1 and NNS2 both stare at the screen. Another student working at a nearby computer looks over, shrugs his shoulders and laughs). Where do we go next? (moves mouse randomly).
NS: Over here on the right? It's like its just caught.
NNS: Yeah really. (Points to the keyboard), I think we should push this.
NS: Okay.
NNS: (Trying a few keys) No.
NS: (Looks at screen) You just have to wait 'cause it's like just taking a while. (Both students sit with hands folded. They both look at the teacher who is next to them working with another student. The teacher walks away, not noticing them. They turn back to the screen).
NNS: (Clicks on the menu bar) What are we doing?

Here the talk was characteristic of that between collaborative partners, both jointly invested in successfully completing the instructional activity. The instability of the medium made collaboration, with its ensuing unplanned discourse, necessary for the students to progress in the activity.

The key aspect of instability is that it provokes and enables collaborative discourse between all parties. The discourse exclusively focused on solving the immediate problems of electronic texts is particularly relevant to the "here and now" and is completely unplanned. Topic control moves back and forth between the teacher and learners when they are both equally unsure about how to go about solving a given problem.

4. Malleability

Electronic texts are subject to mutilation by learners. As such, their malleability provokes thinking and accompanying discourse that pertains to changing and shaping both form and content.

There are multiple instances of this feature contributing a need and desire to communicate on the part of learners and their teachers. The fact that information on the screen can be altered provokes talk centered on changing, creating, editing, and combining what is on the screen. This implies rethinking, renegotiating, reshaping, and rejudging in a very public way both form and meaning. In the following excerpt, a 2nd grade NNS student is building a story by composing text with accompanying pictures and sound. The child and her teacher are negotiating changes to the story.

T: Could you move the dog, J------? Let's see you move that (student moves the dog with the mouse) Put him over by the barn. Is that the size you'd like your dog to be?

After a series of negotiations mediated by information and action on the computer screen, the student, who has lost most control to the teacher, decisively commands the teacher:

NNS: (pointing to the screen) Move it over there.

Furthermore, many computer programs have malleable graphic components with non-linguistic choices for the students to make. This graphic choice also constrains the traditional teacher role of arbiter of knowledge even when she is firmly in control of the topic. In this excerpt two NNS 2nd grade students are in the ESL classroom.

T: What did you do Charlie?
NNS1: I clicked on the dog.
T: And then what did you do to make it move? What did you do with your hand?
NNS1: I touched the dog and I was moving the mouse. (points to the screen)
T: Could you move the dog Justine? Let's see you move that. (Justine moves the dog with her mouse) Put him over by the barn. Is that the size you'd like your dog to be?
NNS2: No.

Thus the malleability of the medium and the control over it that the student enjoys, in a sense, counteracts the typical domination of topic by the teacher.

The malleability feature invites learners and teachers to engage in talk for rethinking possibilities for editing, revising, and elaborating the on-screen work. Learners' need and desire to communicate involves renegotiating both the form and meaning of what has been created and appears on screen. In the resulting discourse the teacher's control of topic is challenged when learners are aware of and are empowered to explore alternatives.

5. Democratization

Having computers in classrooms can change roles in significant ways. Since the focus of attention is on the screen, the computer mediates the discourse. This can have a democratizing effect in which the teacher no longer has control of the topic and the ensuing discourse is conversational in nature. In this excerpt a NNS 4th grade student is paired with a NS student in the mainstream classroom. Another NNS student looks on.

NNS1:	Ms. F-----, what happened to the computer here?
T:	I don't know. What did you do?
NNS1:	We were playing with that banner thingy.
NS:	We were doing one. We didn't print it though.
NNS2:	They went over there.
T:	You went over there?

Thus when learners and their teachers work together around electronic texts, there is potential for a leveling of authority. Learners who may not otherwise have opportunities to express and enact their beliefs and opinions may do so by virtue of the machine.

6. Anchored Referents

Electronic texts provide immediate concrete referents to which talk can be anchored. This is most frequently manifest in learners and teachers pointing with their fingers or with the cursor (mouse) to something on the screen that illustrates, or anchors, their talk and thus both meshes aural and visual, and form and meaning correspondences.

In these interactions there is a great deal of what we call "point talk", that is discourse between learners and instructors which involves pointing to concrete referents on the computer screen as a means of illustrating and supporting what is being said and understood. Frequently learners and teachers talk through on-screen movement, change, and the accompanying problem solving and decision making that electronic texts entail.

When students and teachers talk about what they are doing on the screen, reference is anchored to what is visible on the computer monitor and this "here and now" quality of the discourse affects the control the teacher the teacher can exert. In this excerpt a NNS 4th grade student is in the ESL classroom working with simulation software.

T:	Okay. Stop right here. Did you take a picture of this? (points to screen).
NNS:	Yeah.
T:	Top one. Turn it up.

NNS: This one, right?
T: Yeah, top one. Stingray. So it pronounces it for you.
NNS: In some of them it gots different languages like (moves mouse to an item while pointing to a menu bar with the other hand)
T: (takes the mouse) How did you get another lang . . . Let me look over here and turn the volume up.

Anchored referents provide a focus for discourse and consequently students' unplanned discourse is stimulated and guided by on-screen referents. In interactions between teachers and students, the referents establish a base structure for the teacher's building of instructional scaffolds. Furthermore, anchored referents provide a clarity of purpose when teachers initiate direct instruction. They also serve to focus students' resultant planned discourse given in response to that instruction. In the language interactions around anchored referents, talk is characterized by recurrent use of words that locate the talk in the electronic text environment. Words like "this", "that", "here", "there", and "those" are frequently used and are accompanied by finger pointing or movement of the tracking arrow around the computer screen. In this excerpt, a 2nd grade NNS student in the ESL classroom is writing a story about a farm. The teacher draws her attention to the text.

T: Look up here. (Points to screen). Do you see farm written anywhere? Up here. We called your story farm and you are on page one. (Holds a piece of paper to the screen) Can you find the word farm?
NNS: Farm., page one. (points to the screen).
T: And that is your story, page one. J---- has a farm. Can you tell what letter you need to type in? (points to screen).

Anchored referent is a particularly salient electronic text feature in how it supports optimal conditions. Discourse becomes located in the electronic text environment and is predominantly focused on the learning task. It is a powerful force enabling parties both to maintain control of a topic and take control by initiating talk about a new topic. When teachers provide instruction, the anchored referent feature provides "here and now" relevance focusing learners' attention on a structure that "concretizes" the abstractness of the discourse.

Additional considerations

Where these intersections of electronic texts' unique features and optimal conditions for learning may be generalized to other second language contexts (e.g. foreign language, bilingual education), there are some additional aspects of the technology and how these are shaping ESL-specific instructional processes that are worthy of mention. An additional optimal condition for school age ESL instruction is cross-curricular relevance. The goal for non-native English speaking children in US schools is to read, write, and understand English sufficiently well to master the content of regular classes and like their native speaker counterparts, succeed on tests The ESL professionals we observed make optimal use of the content richness inherent in the electronic texts. First, they design tasks

around software that focus on reading, writing, and vocabulary expansion that relates directly to what children need to do in their content area work. Second, their on-going moment-to-moment support of literacy-oriented activity is greatly facilitated by the public and malleable nature of the medium. They model and encourage "literate talk" and thinking around words, sentences, paragraphs and images that are immediate and manipulable on the computer screen.

Another aspect of the ESL and electronic text environment of note is the "by proxy" role the machine can assume for learners who may not otherwise have the linguistic means and / or social readiness to convey their thoughts. We have seen children who are not developmentally ready to speak the target language or are too reticent to speak for whatever reason using the machine as a way to begin, sustain, and manage conversations with their teacher and fellow students. The publicness, malleability, and anchored referent features of the medium clearly permit the child to have a voice and opportunities for communicating with others that she would otherwise not have.

Our feature analyses of these contexts include attention to an additional optimal condition for language and literacy acquisition. This is the aspect of challenging individual learners to use and understand language that is slightly beyond their current level. This notion of challenge was introduced by Krashen (1982) in the from of the "I+1" hypothesis. The "I" represents input at the learner's current level of competence and the "+1" represents the appropriate challenge to that current level. Environments that encourage and support this challenge are considered optimal. We have witnessed this form of challenge in the electronic text environment and have begun to confirm the act of challenge through stimulated recall sessions for the teachers. Teachers are reporting that they respond to and challenge learners according to the internal syllabus they maintain for each of their students.

CONCLUSION

Language and literacy are socially mediated and socially constructed phenomena. Where technology is commonly viewed as a venue for independent, non-social activity, in these ESL contexts we are observing quite the opposite. Indeed, the presence of technology in conjunction with the goals, purposes, and epistemologies of these teachers is resulting in a unique and powerful classroom dynamic where children are taking control of their own meaning-making with teachers scaffolding and guiding the process. The manner in which these activities are being orchestrated and supported by technology is instructive for teachers, teacher educators, administrators and curriculum developers as they consider roles for the technology in various language / literacy oriented school contexts.

In these ESL contexts we have observed rich socially-mediated literacy activity whereby machines serve as springboards and supports for reading, writing, listening, speaking and thinking. Such uses of electronic texts demonstrate the real and potential roles of the medium and the ways in which the unique features can be made to facilitate language and literacy activity. Analysis of these carefully crafted and orchestrated electronic text activities with ESL learners has helped us to point to some of the real and potential language and literacy implications of the medium when thoughtfully integrated into instructional contexts.

Language professionals orchestrate and support social interaction around any number of different forms of relevant realia to elicit thinking and communication in the target language. Electronic texts represent one of many resources that are being integrated into instructional activities. Our observations of exemplary uses of electronic texts with learners of ESL provide working examples of this integration and offer a view of some of the unique features of the electronic text medium that can shape novel, empowering roles for learners and their teachers. The constructive, literacy-oriented discourse that is typical within these contexts is clearly in keeping with the needs, goals, and optimal process of second language and literacy learning.

Computers quickly obsolesce. They break, wear out, and become too cumbersome to maintain. However, language and literacy rich routines and rapport — the kinds of crystallized operat ns evidenced in these ESL and electronic text environments — will always constitute the nexus of optimal learning. That these supportive and constructive forms of discourse will persist, will move fluidly and fluently across changing megahertz, platforms and peripherals, is testament to the primacy of the human dimension in the teaching and learning of language and literacy.

References

Cathcart, R. (1986) Situational differences and the sampling of young children's school language. In R. Day (Ed.) *Talking to learn: Conversation in second language acquisition.* Rowley, Mass.: Newbury House.

Corder, S. P. (1977) Language teaching and learning: A social encounter. In H. Brown, C. Yorio, and R. Crymes (Eds.) *On TESOL '77.* Washington D.C.: TESOL.

Ellis, R. (1986) *Understanding second language acquisition.* New York: Oxford University Press.

Ellis, R. (1990) *Instructed second language acquisition.* Oxford: Blackwell.

Ellis, R. (1995) Interpretation tasks for grammar teaching. *TESOL Quarterly, 29,* 87-105.

House, J. (1986) Learning to talk: Talking to learn. An investigation of learner performance in two types of discourse. In G. Kasper (Ed.) *Learning, teaching and communication in the foreign language classroom.* Aarhus: Aarhus University Press.

Johnson, K. (1995) *Understanding communication in second language classrooms.* New York: Cambridge University Press.

Kramsch, C. (1985) Classroom interaction and discourse options. *Studies in Second Language Acquisition, 7,* 169-83.

Krashen, S. (1982) *Principles and practice in second language acquisition.* Oxford: Pergamon Press.

Long, M. (1991) Focus on form: A design feature in language teaching methodology. In K. de Bot, D. Coste, R. Ginsberg, and C. Kramsch (Eds.) *Foreign language research in cross-cultural perspectives.* Amsterdam: John Benjamins.

Meskill, C. and Mossop, J. (1997) *Technologies use with learners of English as a second language in New York State.* Albany, New York: National Research Center on English Learning and Achievement.

Savignon, S. (1991) Communicative language teaching: State of the art. *TESOL Quarterly, 25,* 261-277.
Sinclair, J. and Coulthard, M. (1975) *Towards an analysis of discourse.* Oxford: Oxford University Press.
Ulmer, G. (1989) *Teletheory: Grammatology in the age of video.* New York: Routledge.
Van Lier, L. (1988) *The classroom and the language learner.* London: Longman.
Van Patten, B. (1990) Attending to form and content in the input: An experiment in consciousness. *Studies in Second Language Acquisition, 12,* 287-301.
Vygotsky, L. (1978) *Mind in society.* Cambridge: Harvard University Press.
Winkelmann, C. (1995) Electronic literacy, critical pedagogy, and collaboration: A case for cyborg writing. *Computers and the Humanities, 99,* 431-448.

The National Center on English Learning and Achievement (CELA) is dedicated to improving the teaching and learning of English and the language arts. CELA provides information about how best to develop the literacy skills that will heighten student achievement in the content areas, as well as how achievement in the content areas can strengthen literacy skills. CELA is operated by the University at Albany in collaboration with the University of Wisconsin-Madison. Additional partners include the Universities of Oklahoma and Washington. The Center is supported by the U.S. Department of Education's Office of Educational Research and Improvement (Award #R305A60005). The views expressed herein are those of the authors and do not necessarily represent the views of the department.

We would appreciate your feedback and comments to this draft paper. We can be reached at the following e-mail addresses:

Carla Meskill:	meskill@cnsvax.alnany.edu
Jonathan Mossop	mossopj@crisny.org
Richard Bates	rb0864@cnsvax.albany.edu